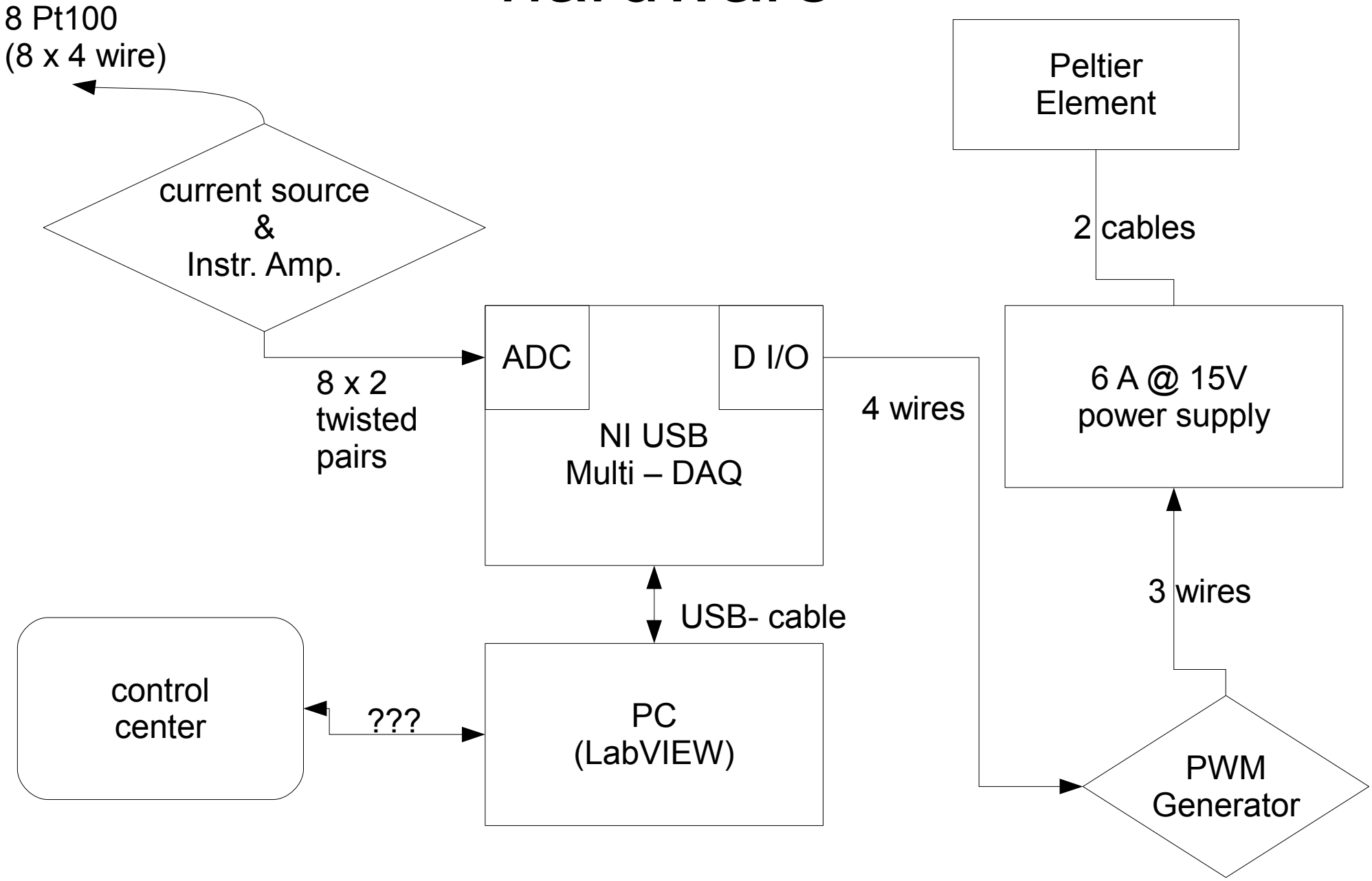
software status
cooling / humidity

First DWARF general meeting
Würzburg
25.02.2009

D.Neise

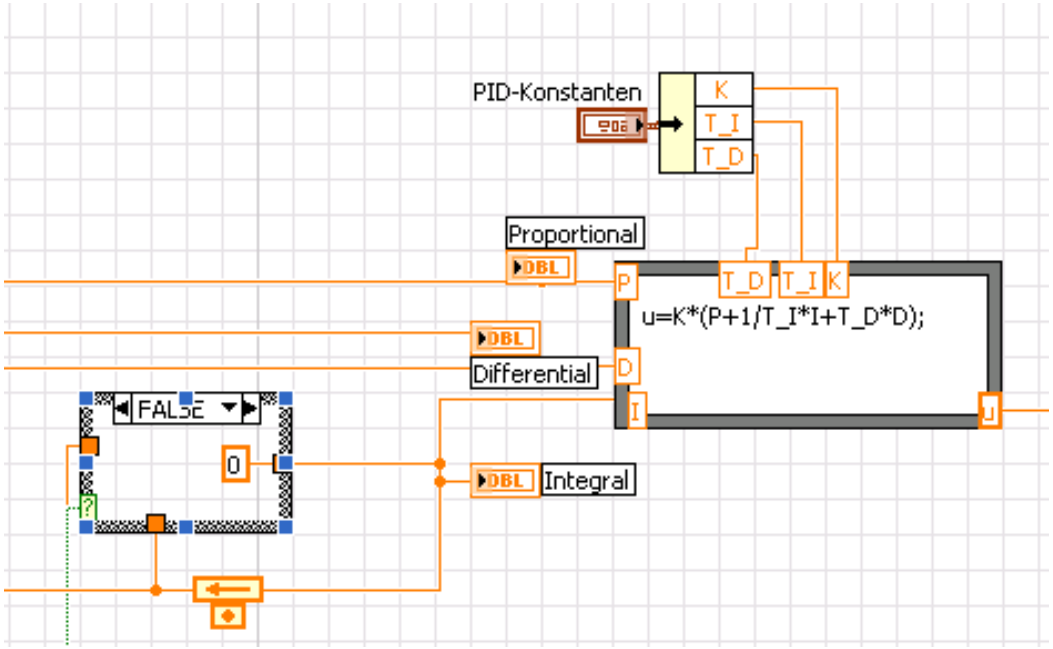
LabVIEW PID controller hardware



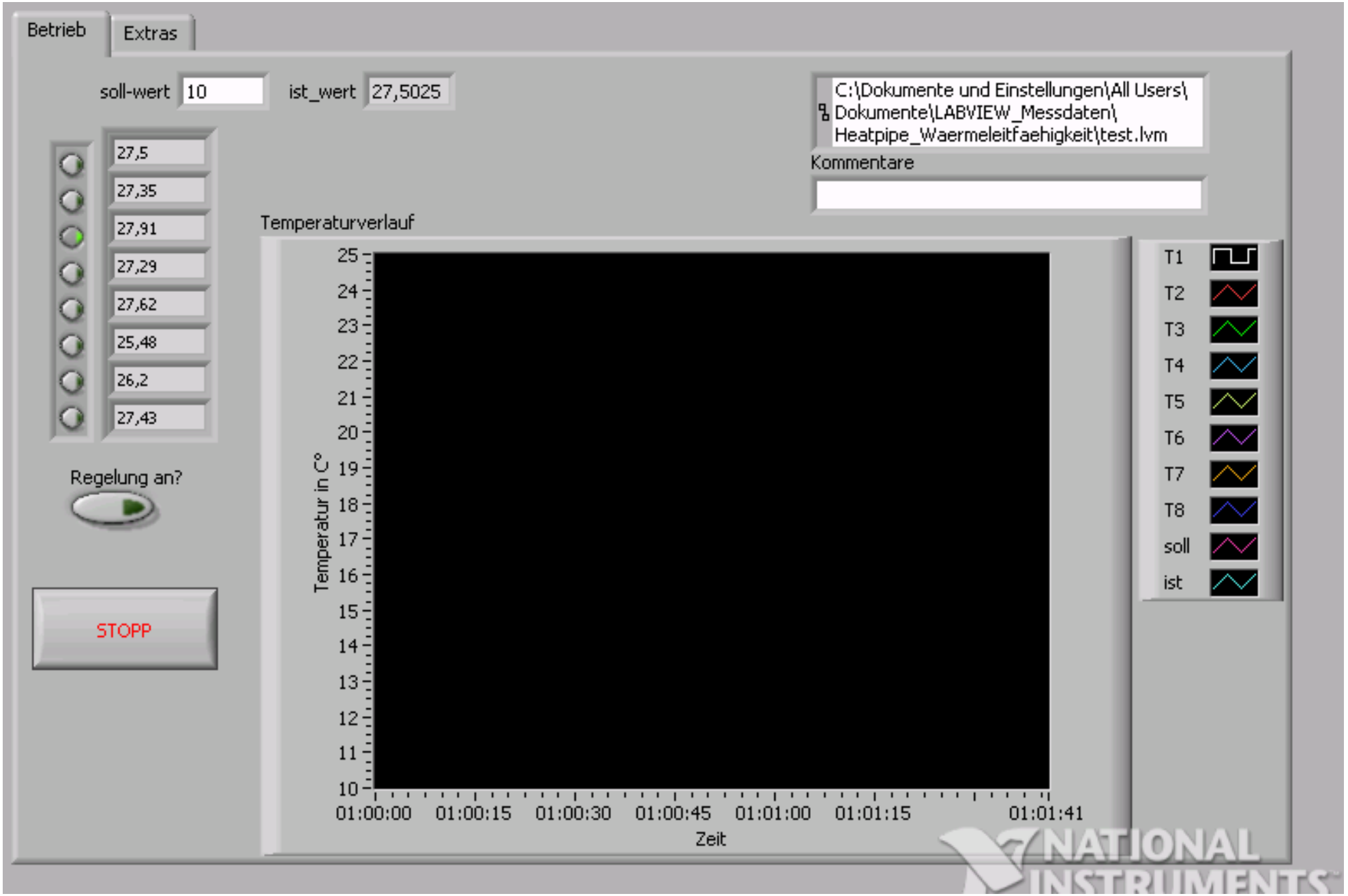
LabVIEW – PID ctrl. VI

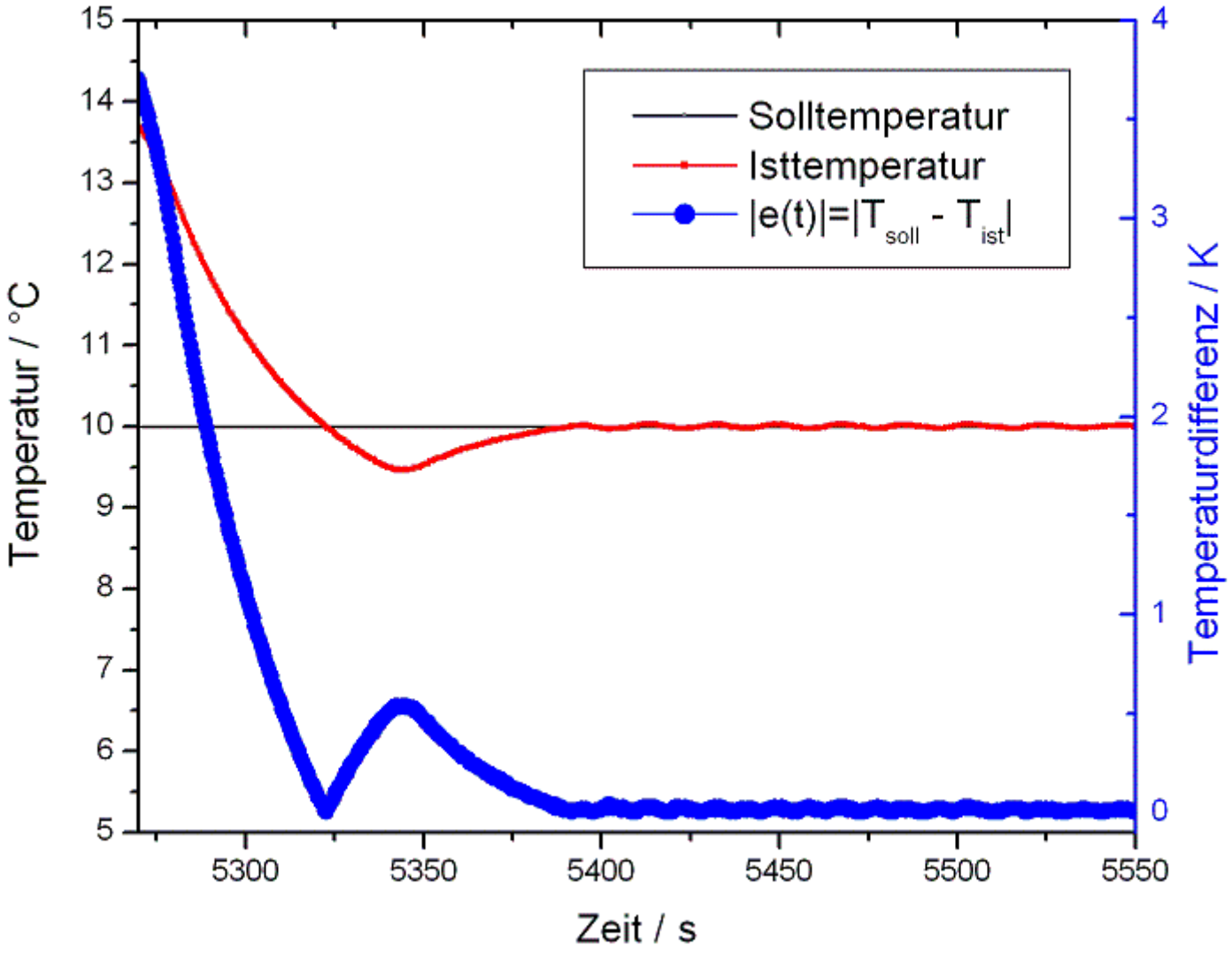
$$I_{PE}(t) = K \cdot \left(e(t) + 1/T_N \int e(t')dt' + T_V \frac{d}{dt} e(t) \right)$$

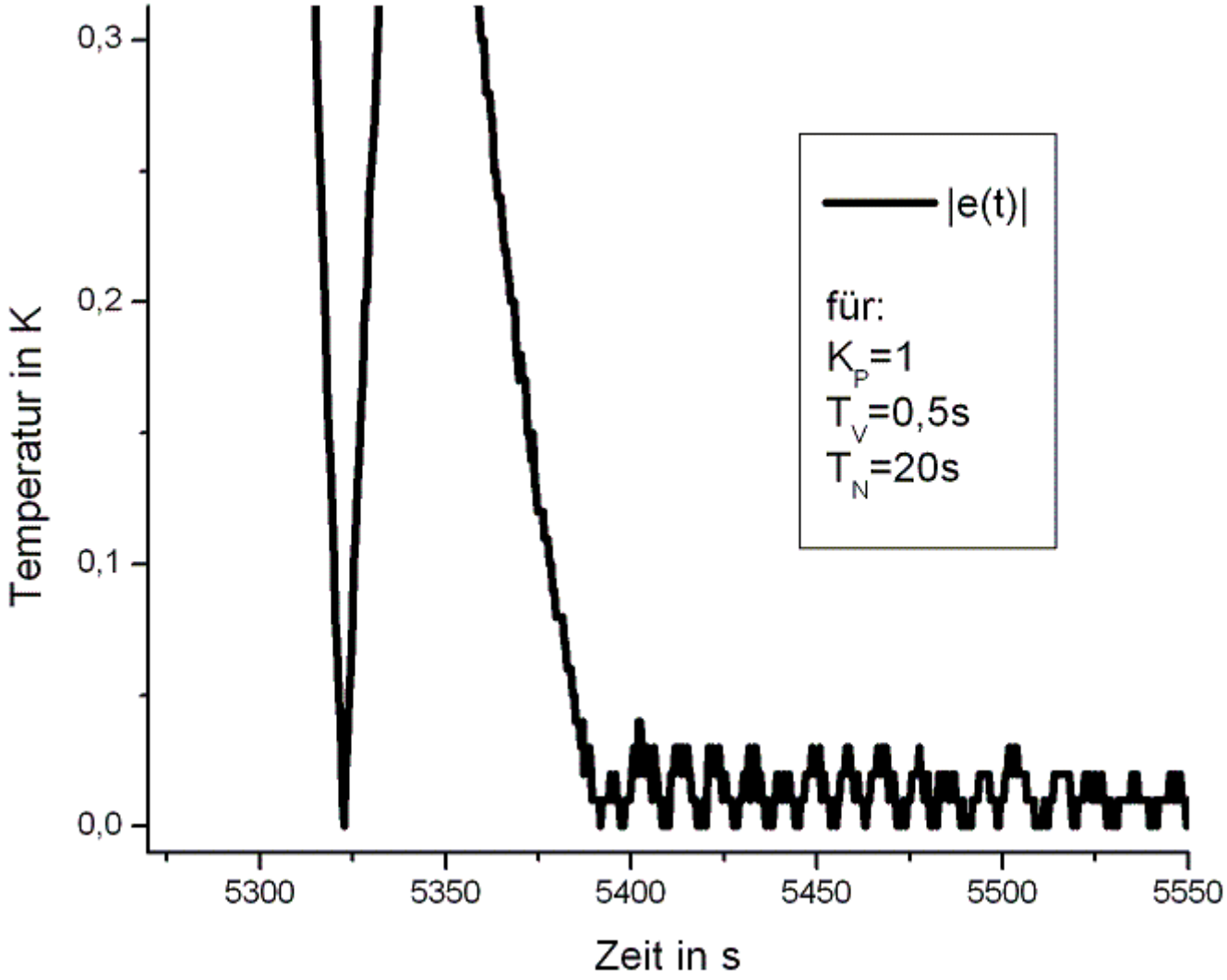
- NI DAQmx Methoden → NI USB DAQ-box
- ca. 2Hz Tempsensor update → PE-Strom
- Konstanten sind „per Hand“ an das jeweilige Setup anzupassen.

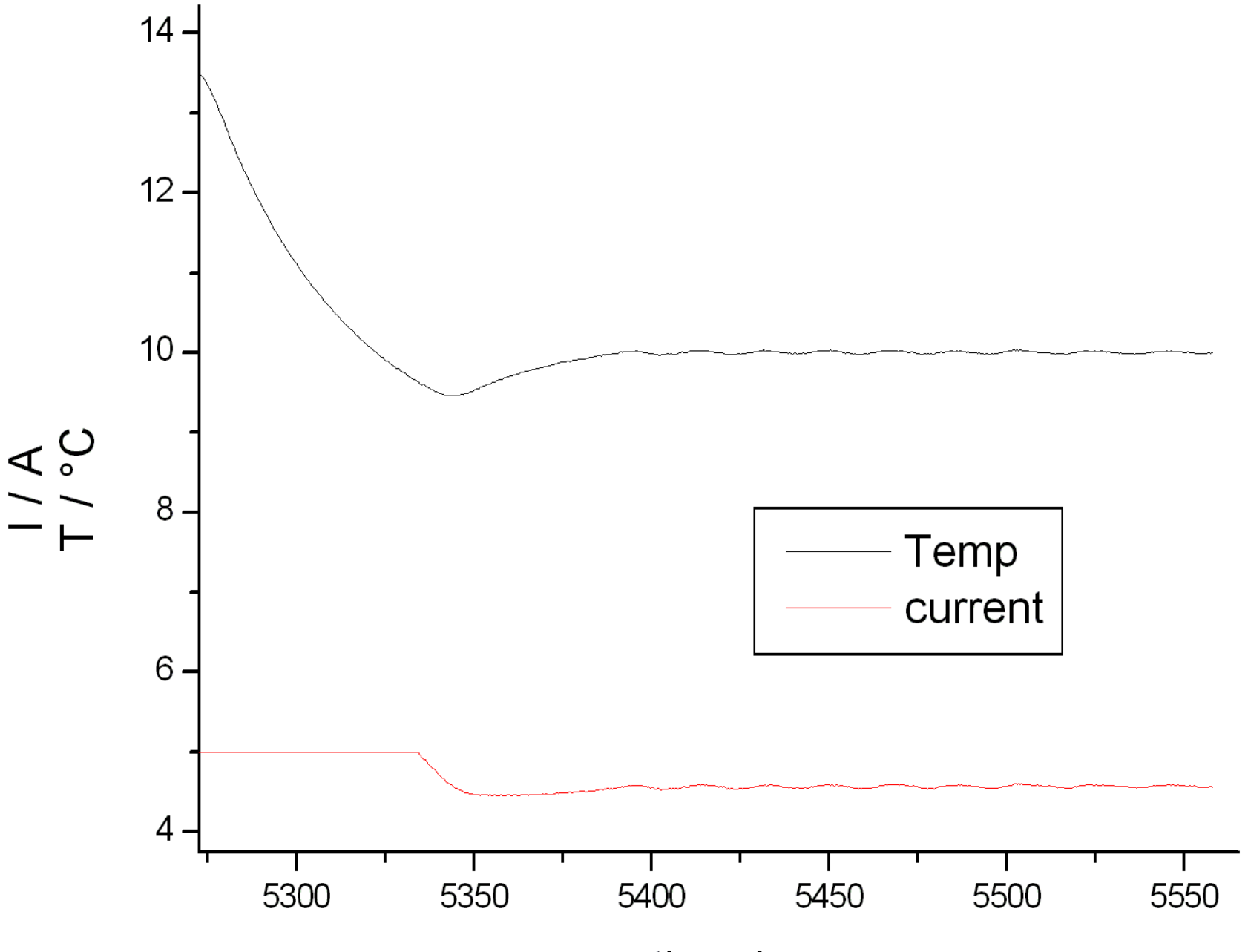


LV - Frontpanel




Solltemperatur
Isttemperatur
|e(t)|=|T_soll - T_ist|
Temperatur / °C
Temperaturdifferenz / K
Zeit / s
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
5300
5350
5400
5450
5500
5550


0,3
0,2
0,1
0,0
Temperatur in K
5300
5350
5400
5450
5500
5550
Zeit in s
|e(t)|
für:
K_P=1
T_V=0,5s
T_N=20s

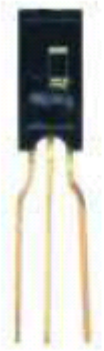

I / A
T / °C
14
12
10
8
6
4
5300
5350
5400
5450
5500
5550
Temp
current

to do

- Überschwingen im Einschwingvorgang unterdrücken?
- Schwingneigung im Eingeschwungenen Zustand unterdrücken? (≈3LSB @ 0.1Hz)
- Software-Hardware Handshake?
  für Not-Aus bei: Wasserkühlungsausfall und Regelsoftware Absturz gleichzeitig

Humidity Sensor

- Vin/Vout ~ %RH
- Vin , Vout , Temp monitor IC
- quasi 1-wire-humidity sensor



Representative photograph, actual product appearance may vary.

Due to regional agency approval

HIH-4000-001

HIH-4000 Series Integrated Circuity Humidity Sensor, 2,54 mm (0.100 in) Lead Pitch SIP

Features

- Molded thermoset plastic housing with cover
- Linear voltage output vs %RH
- Laser trimmed interchangeability
- Low power design
- High accuracy
- Fast response time
- Stable, low drift performance
- Chemically resistant